UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,050	12/15/2003	Yi He	10030999-01	4769

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EXAMINER
LE, JOHN H

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

AK

	Application No.	Applicant(s)
Office Action Summary	10/737,050	HE ET AL.
	Examiner	Art Unit	
	John H. Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 August 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7,10-13,17 and 20* is/are rejected.

7)☒ Claim(s) *3-6,8,9,14-16,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

Response to Amendment

1.   This office action is in response to applicant's amendment received on

08/04/2005.

Claims 2, 9, 10, and 12 have been amended.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1 and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by

Dent (USP 6,226,271).

Regarding claim 1, Dent discloses a system for generating a histogram of a

plurality of power data values (e.g. Col.2, lines 58-67), the system comprising: a

processing apparatus (microprocessor) receiving the plurality of power data values

(RSSI value) and converting the plurality of power data values (AtoD convertor 17,

Fig.1) to a plurality of floating-point numbers (e.g. Col.6, line 39-Col.7, line19, Col.8,

lines 21-23); and a memory including a plurality of histogram bins connected

electronically to the processing apparatus, wherein the processing apparatus stores

counts of the plurality of floating-point numbers using each floating-point number as an

address for a corresponding histogram bin in the memory (e.g. Col.7, lines 20-Col.8,

line 26, Col.11, line 46-Col.12, line 10).

Regarding claim 12, Dent discloses a method for generating a histogram of a plurality of power data values (e.g. Col.2, lines 58-67), comprising:

a) receiving a power data value (e.g. Col.6, lines 39-50);

b) converting the power data value to a floating-point number (e.g. Col.6, lines 53- Col.8, lines 23);

c) reading a location in a memory using the floating-point number as an address for the location in memory (e.g. Col.7, line 37-Col.8, lines 26, Col.11, lines 46-62);

d) incrementing by one a count read from the location in memory (e.g. Col.7, lines 37-Col.8, line 12);

e) writing the incremented count to the location in memory (e.g. Col.11, lines 46-62); and

f) repeating a through a until all of the power data values in the plurality of power data values have been received, converted, and accumulated in corresponding locations in memory (e.g. Col.4, lines 16-18, lines 20-24, lines 52-56, Col.12, lines 34-48); and

g) generating a histogram of the plurality of floating-point numbers using the memory locations as histogram bins (e.g. Col.11, line 46-Col.12, line 10).

Regarding claim 13, Dent discloses calculating a complementary cumulative distribution function curve from the histogram (e.g. Col.3, lines 38, Col.16, lines 30-38).

4.   Claims 2, 10-11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (USP 6,226,271) in view of Leffel (US 2005/0057303).

Regarding claims 10-11, Dent teaches an analog to digital converter receiving an analog immediate frequency signal and converting to a digital immediate frequency signal (AtoD convertor 17, Fig.1); and an application specific integrated circuit (digital signal processing, Fig1) receiving the digital immediate frequency signal, down-converting the immediate frequency signal to a baseband signal (down convertor 13, Fig.1), converting each power data value to a floating-point number (e.g. Col.6, line 39-Col.7, line19, Col.8, lines 21-23), and storing counts of the plurality of floating-point numbers using each floating-point number as an address for a corresponding histogram bin in the memory (e.g. Col.7, lines 20-Col.8, line 26, Col.11, line 46-Col.12, line 10).

Regarding claims 2, 10-11, and 17, Dent fails to teach the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values.

Leffel teaches the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values (e.g. Fig.2, [0027]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the plurality of power data values comprise a plurality of $(I^2 + Q^2)$ data values as taught by Leffel in a method for generating a histogram of a plurality of power data values of Dent for the purpose of providing a method and system for measuring power level and cumulative distribution function measurement (Leffel, [0097], [0123], [0124]).

5.   Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent (USP 6,226,271) in view of Abercrombie et al. (USP 6,275,920).

Regarding claims 7 and 20, Dent fails to teach a maximum count for the histogram bins is determined by the equation (2^W-1), where w represents a bit width of the memory.

Abercrombie et al. teach a maximum count for the histogram bins is determined by the equation (2^W-1), where w represents a bit width of the memory (e.g. 8 bits width, maximum count is 255, Col.109, lines 25-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to inform a maximum count for the histogram bins is determined by the equation (2^W-1) as taught by Abercrombie et al. in a method for generating a histogram of a plurality of power data values of Dent for the purpose of providing a histogram operation (Abercrombie et al., Col.109, line 24).

Allowable Subject Matter

6.   Claims 3-6, 8-9, 14-16, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In combination with other limitations of the claims, the cited prior arts fails to teach an exponent and a mantissa in the plurality of floating-point numbers are computed according to the equations:

exponent = 2^E-1 - (number of leading zeros in MS, up to 2^E-1)

mantissa = $MS[(N-2^E-1+exp):(N-2^E+exp-M)]$ for exp>0; or

mantissa = MS[(N-2^E):(N-2^E +1-M)]   for exp=0

where E is the number of bits assigned to the exponent, M is the number of bits assigned to the mantissa, MS is a respective (I^2 + Q^2) data value in the plurality of (I^2 + Q^2) data values, and N is the number of bits assigned to the plurality of (I^2 + Q^2) data values, as recited in claim(s) 3 and 18.

In combination with other limitations of the claims, the cited prior arts fails to teach the plurality of power data values comprise a plurality of (I^2 + Q^2) data values, wherein each (I^2 + Q^2) data value represents a power value of a signal; wherein the processing apparatus comprises: a field programmable gate array receiving the plurality of (I^2 + Q^2) data values; and a microprocessor connected electronically to the field programmable gate array, wherein the field programmable gate array and the microprocessor work cooperatively to convert each (I^2 + Q^2) data value to a floating-point number and store counts of the plurality of floating-point numbers using each floating-point number as an address for a corresponding histogram bin in the memory, as recited in claim(s) 8.

In combination with other limitations of the claims, the cited prior arts fails to teach the processing apparatus comprises: an analog to digital converter receiving an analog immediate frequency signal and converting to a digital immediate frequency signal; an application specific integrated circuit receiving the digital immediate frequency signal, down-converting the immediate frequency signal to a baseband signal including a plurality of I and Q data values, and calculating the plurality of power data values comprised of a plurality of (I^2 + Q^2) data values, wherein each (I^2 + Q^2) data value

represents a power value of a signal; a field programmable gate array receiving the

plurality of (I^2 + Q^2) data values; and a microprocessor connected electronically to the

field programmable gate array, wherein the field programmable gate array and the

microprocessor work cooperatively to convert each (I^2 + Q^2) data value to a floating-

point number and store counts of the plurality of floating-point numbers using each

floating-point number as an address for a corresponding histogram bin in the memory,

as recited in claim(s) 9.

In combination with other limitations of the claims, the cited prior arts fails to

teach calculating a complementary cumulative distribution function curve from the

histogram comprises calculating an average power for the plurality of power data values

according to the equation average power = $\sum$- (P_i * C_i)/ $\sum$- (C_i), for i = 1 to K, and K =

number of bins, P_i is the power for the ith bin, and C_i is the count for the ith bin, as

recited in claim(s) 14.

Response to Arguments

7.   Applicant's arguments filed 08/04/2005 have been fully considered but they are

not persuasive.

-Applicant argues that the prior did not teach "using each floating-point number

as an address for a corresponding histogram bin in the memory".

Examiner position is that Dent teaches using each floating-point number as an

address for a corresponding histogram bin in the memory (e.g. Col.7, lines 20-Col.8,

line 26, Col.11, line 46-Col.12, line 10).

-Applicant argues that Hamilton and the present application were subject to an obligation of assignment to the same entity, Agilent Technologies, Inc. Thus, under 35 USC 103(c), Hamilton should not be considered.

Examiner agrees, therefore the rejections under 35 U.S.C. 103(a) as being unpatentable over Hamilton are withdrawn.

Contact Information

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571 272 2275. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571 272 2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

John H. Le

Patent Examiner-Group 2863

September 30, 2005

BRYAN BUI
PRIMARY EXAMINER